Special Issue

Mathematical Modelling, Analysis, and Optimization for Engineering and Mechanics

Message from the Guest Editors

Mathematical modelling, analysis and further optimization attempts to understand nonlinear phenomena are fundamentally present in nature and form the basis of science, engineering, and consequently mechanics. They form the foundation of our understanding of all engineering applications and are thus present in the solutions/states of the dynamical modelling of mechanics. Through the theoretical application and numerical implementation of pioneering theoretical techniques such as Poincaré sections, weakly nonlinear analysis/perturbation methods, Floquet analysis and bifurcation theory within Euclidean or curvilinear space fixed-point and their stability can be identified, while transient solutions can be followed, offering the possibility to explicitly optimise mechanical states that have both engineering applications and simultaneously present significant theoretical advances. To celebrate the role of "Mathematical Modelling, Analysis, and Optimization for Engineering and Mechanics", the Special Issue aims to publish original research papers and reviews on the latest advancements in modelling, analysis, and optimization for engineering and mechanics.

Guest Editors

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Deadline for manuscript submissions

closed (10 August 2025)

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Mathematics

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About the Journal

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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